ANL/EVS/AGEM/TR-13-02

Argonne NATIONAL LABORATORY

Ramona, Kansas, Corrective Action Monitoring Report for 2012

Environmental Science Division

USDA United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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Ramona, Kansas, Corrective Action Monitoring Report for 2012

by
Applied Geosciences and Environmental Management Section
Environmental Science Division, Argonne National Laboratory

April 2014

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Notation

AGEM	Applied Geosciences and Environmental Management
AMSL	above mean sea level
BGL	below ground level
°C	degree(s) Celsius
CAS	*Corrective Action Study*
CCC	Commodity Credit Corporation
CD	compact disc
EPA	U.S. Environmental Protection Agency
ft	foot (feet)
gal	gallon(s)
hr	hour(s)
in.	inch(es)
KDHE	Kansas Department of Health and Environment
L	liter(s)
µg/L	microgram(s) per liter
µS/cm	microsiemen(s) per centimeter
mg/L	milligram(s) per liter
min	minute
mV	millivolt(s)
USDA	U.S. Department of Agriculture
VOC	volatile organic compound

Ramona, Kansas, Corrective Action Monitoring Report for 2012

1 Introduction and Background

This *Monitoring Report* describes groundwater monitoring for the property at Ramona, Kansas, on which a grain storage facility was formerly operated by the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA). The monitoring was implemented on behalf of the CCC/USDA by Argonne National Laboratory. Monitoring was conducted as specified in the *Long-Term Groundwater Monitoring Plan* (Argonne 2012) approved by the Kansas Department of Health and Environment (KDHE 2012).

Background information and details of the Ramona site investigation and the Ramona *Corrective Action Study* (CAS) were presented previously (Argonne 2005, 2007, 2011). The procedures followed for the monitoring activities in 2012 are described in the *Master Work Plan* (Argonne 2002) and in the site-specific *Long-Term Groundwater Monitoring Plan* (Argonne 2012). Sampling is to be conducted in years 1, 2, 3 (if needed), 5, and 10 following the plan's issuance.

Ramona, Kansas, is a small rural town with 187 residents (2010 Census). Located in the north-central portion of Marion County, Ramona is 104 mi southwest of Topeka, Kansas, in the SE 1/4 of Section 2, Township 17 South, Range 3 East (Figure 1.1). Grain storage has occurred over the years at multiple locations in Ramona, including the former CCC/USDA facility and the facility operated by the Agri Producers, Inc., of Tampa, Kansas (the co-op). The co-op operates on the opposite side of the railroad right-of-way from the former CCC/USDA facility (Figure 1.2).

The former CCC/USDA facility operated from 1950 to 1966 on one acre of leased land in the southeast part of Ramona. No structures remain on the property. The land is currently used for agriculture. The property (Figure 1.2) is privately owned by Byron and Julie Noeth (who reside at 506 East First Street) and is located within the Ramona municipal boundaries. For tax purposes, the property is zoned residential.

The principal water source for Ramona residents, including the Noeth family, is the Marion County Rural Water District #1. This public water supply was installed in 1995 with funding provided under an emergency grant by the USDA Farmers Home Administration.

Groundwater contamination resulting from grain storage activities has been detected at both the former CCC/USDA facility and the co-op, as summarized previously (Argonne 2005). Sources of the groundwater contamination associated with the co-op are under investigation. Studies by the CCC/USDA (Argonne 2007, 2011) indicate that the concentrations of carbon tetrachloride in groundwater that can potentially be attributed to past CCC/USDA activities are decreasing and that groundwater impacts above threshold levels are localized and isolated from groundwater being impacted by the co-op. In 2006, an investigation by the KDHE (with split sampling by Argonne) confirmed carbon tetrachloride and fuel source areas within the co-op property, upgradient from the former CCC/USDA facility, but found no evidence for contamination between the co-op property and the former CCC/USDA property (KDHE 2006).

Consistent with recommendations provided in the Ramona CAS (Argonne 2011) and the KDHE's *Agency Decision Statement* (KDHE 2011), one element of the remedial action selected to address groundwater at the former CCC/USDA facility is groundwater monitoring, as described in the *Long-Term Groundwater Monitoring Plan* (Argonne 2012). This report documents the results of the first year's monitoring in 2012. Sampling of the approved monitoring well network and two private water wells was conducted on October 10-11, 2012.

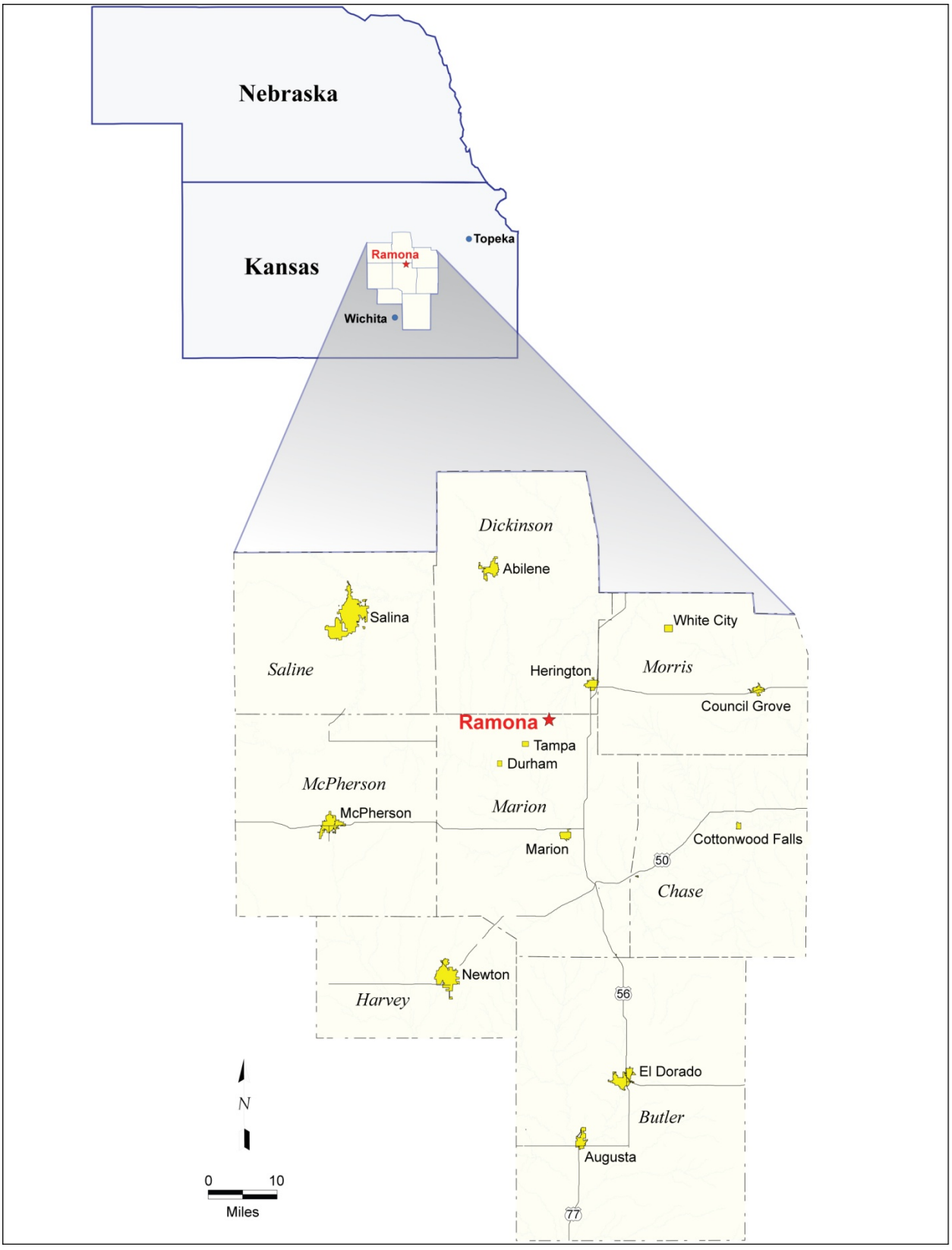

FIGURE 1.1 Location of Ramona, Kansas.

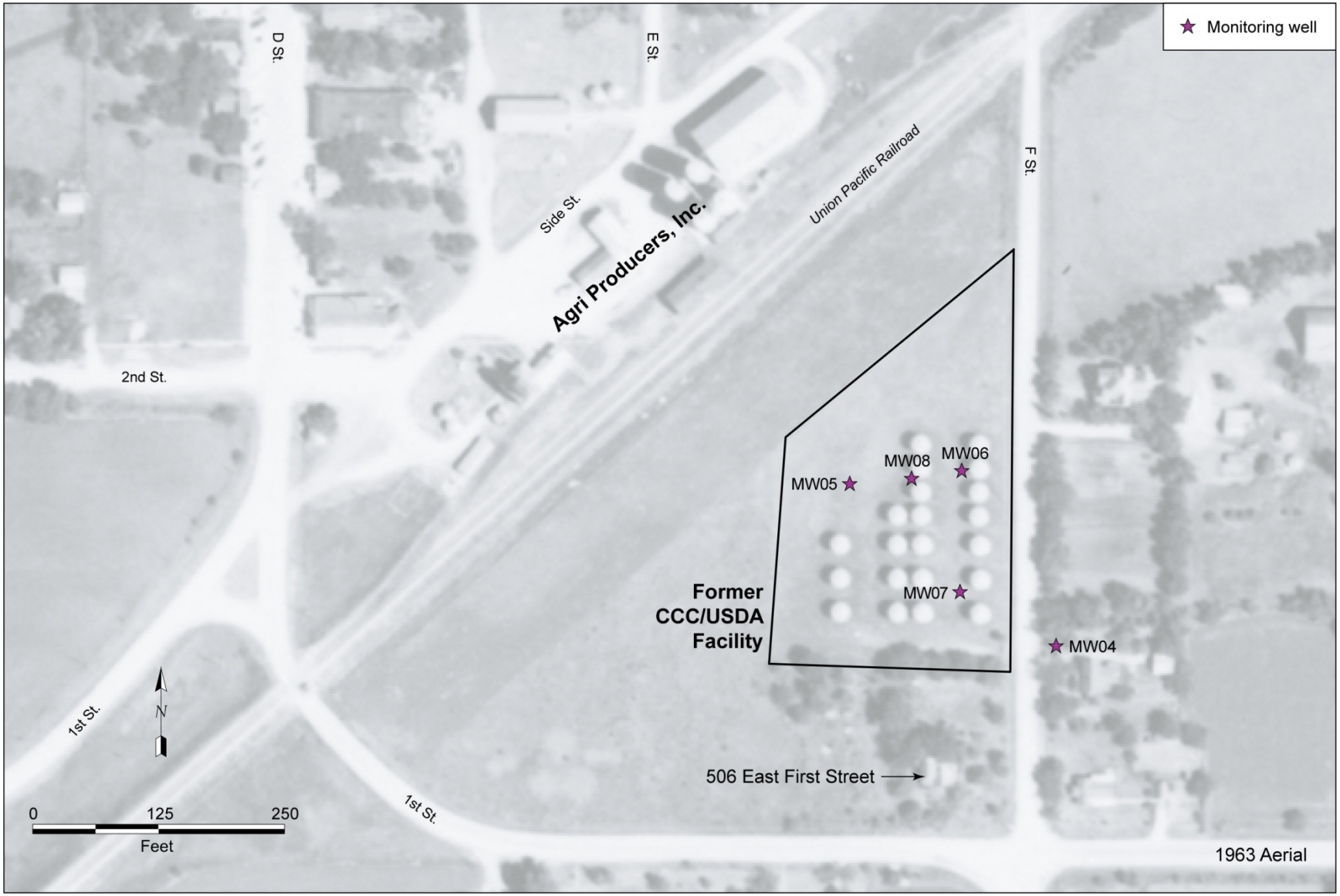

FIGURE 1.2 Boundary of the former CCC/USDA property and locations of monitoring wells MW04-MW08. Source of photograph: USGS (1963).

2 Sampling and Analysis in 2012

2.1 Measurement of Groundwater Levels

Groundwater levels were measured continuously from July 2006 to November 2010 in wells MW04, MW05, MW06, MW07, and MW08 (Figure 1.2). The results of this monitoring demonstrated that groundwater flow is predominantly toward the north and northeast beneath the portion of the CCC/USDA facility impacted by carbon tetrachloride contamination. In the wider area, water level contours constructed by the KDHE (2006) and by Argonne (2011) also showed that groundwater flow is toward the north and northwest in the vicinity of the co-op property, as well as across much of the area to the west and northwest of the former CCC/USDA facility (Figure 2.12 in Argonne 2011).

Groundwater levels are now measured manually in conjunction with sampling activities, the direction of groundwater flow having been established through prior investigation. In 2012, water levels were measured in wells MW04, MW05, MW06, MW07, and MW08 (Figure 1.2), as discussed in Section 3.1.

2.2 Well Sampling and Analyses

Groundwater samples were collected from monitoring wells MW04, MW05, MW06, MW07, and MW08 during the October 10-11, 2012, sampling event. In addition, the Riddle (formerly Bura) and Noeth private wells were sampled. The Svoboda (formerly Buxman) private well was not sampled; the pump was not operational, and pump removal to allow sampling was not authorized by the resident. The well locations designated for sampling in 2012 are shown in Figure 2.1. Construction information for these wells is in Table 2.1. A chronological summary of the field activities in 2012 is in Appendix A, Table A.1.

Before implementation of the sampling procedure specified in the *Long-Term Groundwater Monitoring Plan* (Argonne 2012), a hand-held water level indicator was used to measure the depth to groundwater and the total depth of each monitoring well, to within 0.01 ft, from the top of the well casing. After measurement of water levels, the monitoring wells were purged and sampled as specified (Section 3.3.1 in Argonne 2012). The Noeth private well was

sampled at its faucet after purging for 5 min, while the Riddle well was sampled after purging of 50 gal (Table A.1 in Appendix A). The field measurements are in Appendix A, Table A.2.

Groundwater samples designated for analyses for volatile organic compounds (VOCs) were collected in appropriate laboratory containers, labeled, packaged, and chilled to 4°C by placement in ice-filled coolers. The samples were shipped overnight to the Applied Geosciences and Environmental Management (AGEM) Laboratory at Argonne for VOCs analyses with U.S. Environmental Protection Agency (EPA) Method 524.2 (EPA 1995). Aliquots of selected samples (chosen in the field) were also shipped to TestAmerica Laboratories, Inc., South Burlington, Vermont, for verification VOCs analyses according to EPA Contract Laboratory Program protocols.

The analytical results are presented and discussed in Section 3.2.

2.3 Handling and Disposal of Investigation-Derived Waste

The purge water from the private wells was discharged to the ground. The small volume of purge water from the monitoring wells (a combined total of approximately 7.3 L; < 2 gal; Table A.1 in Appendix A) contained carbon tetrachloride at a low concentration (below the maximum contaminant level) and posed no health risk. This water was similarly discharged to the ground.

2.4 Quality Control for Sample Collection, Handling, and Analysis

Quality assurance/quality control procedures followed during the 2012 monitoring event are described in detail in the *Master Work Plan* (Argonne 2002). The results are summarized as follows:

- Sample collection and handling activities were monitored by the documentation of samples as they were collected and the use of chain-of-custody forms and custody seals to ensure sample integrity during handling and shipment.

- Samples designated for VOCs analyses were received with custody seals intact and at the appropriate preservation temperature. All samples sent to the AGEM Laboratory were analyzed within the required holding times.

- Quality control samples collected to monitor sample-handling activities (a trip blank and an equipment rinsate) and method blanks analyzed with the samples to monitor analytical methodologies were all free of carbon tetrachloride and chloroform contamination. Analytical results for quality control samples collected to monitor sample-handling activities are in Appendix B, Table B.1.

- Groundwater samples were analyzed for VOCs at the AGEM Laboratory by the purge-and-trap method on a gas chromatograph-mass spectrometer system. Calibration checks analyzed with each sample delivery group were required to be within ±20% of the standard. Surrogate standard determinations performed on samples and blanks were within the specified range of 80-120% for all samples, in either the initial analysis or a successful reanalysis.

- Results from the AGEM Laboratory for a groundwater sample and its duplicate analysis are in Appendix B, Table B.1. The results of this dual analysis compare well, with a relative percent difference value for carbon tetrachloride of approximately 8%, indicating consistency in the sampling and analytical methodologies.

- In accordance with the procedures defined in the *Master Work Plan* (Argonne 2002), groundwater samples were submitted to a second laboratory (TestAmerica) for verification analysis according to the protocols of the EPA's Contract Laboratory Program. Documentation is in Supplement 1 (on a compact disc [CD] inside the back cover of this report). The results from TestAmerica are summarized in Appendix B, Table B.2. The carbon tetrachloride results for all samples analyzed by TestAmerica were marked with the B qualifier, indicating that carbon tetrachloride was detected in laboratory blanks associated with the analyses of these samples. Nevertheless, the TestAmerica results generally support the results from the AGEM Laboratory. Neither laboratory detected chloroform or methylene chloride in the sample from the Noeth private well or trip blank RAQCTB-W-21504.

Neither laboratory detected methylene chloride in the samples from wells MW06 and MW07, while both laboratories detected carbon tetrachloride and chloroform at similar concentrations. None of the contaminants of concern were detected by the AGEM Laboratory in the sample from the Noeth well or trip blank RAQCTB-W-21504, but trace amounts of carbon tetrachloride were detected by TestAmerica in these samples in conjunction with the trace detection of the compound in an associated laboratory blank.

TABLE 2.1 Construction details for wells proposed for sampling.

			Depth (ft BGL)				
Well	Kansas Registration Number[a]	Diameter (in.)	Screen Interval	Filter Pack Interval	Water Level	Total	Casing Elevation (ft AMSL)
Monitoring wells							
MW04	392881	1	45-55	44-55	55.5	55	1439.52
MW05	393241	1	45-55	44-55	55.1	55	1435.19
MW06	392883	1	45-55	44-55	55.6	55	1436.63
MW07	392884	1	45-55	44-55	55.7	55	1438.15
MW08	392885	1	45-55	44-55	55.5	55	1435.72
Private wells							
Riddle[b]	–	–	–	–	–	65[c]	1439.14
Svoboda[d]	–	–	–	–	–	75	–
Noeth[e]	–	–	–	–	–	–	–

[a] Registration number in the Kansas Geological Survey well registration database.

[b] Formerly Bura.

[c] Information provided by well owner.

[d] Formerly Buxman. Well was not sampled because the pump was inoperable.

[e] Formerly Chartier.

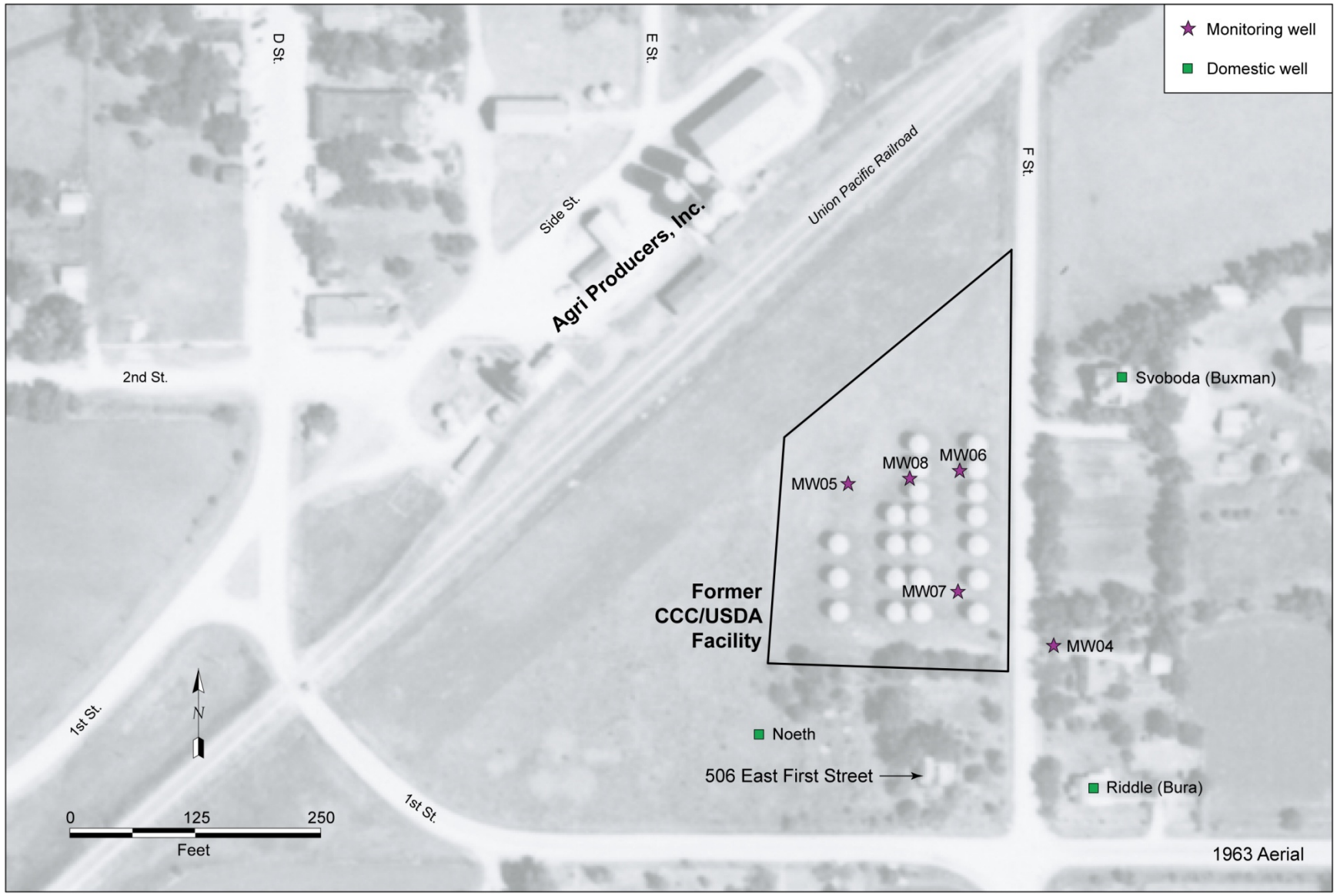

FIGURE 2.1 Locations of the wells designated for sampling in 2012. Source of photograph: USGS (1963).

3 Results and Discussion

3.1 Groundwater Level Data

Manual water level measurements taken during sampling on October 10-11, 2012, are in Table 3.1, along with manual measurements made on April 27, 2009, for comparison. Figure 3.1 illustrates the potentiometric surface in the immediate vicinity of the former CCC/USDA property, for data collected on October 10-11, 2012. This map indicates a predominant direction of groundwater flow to the north and northeast across the portion of the former CCC/USDA facility in which groundwater contamination has been identified, consistent with earlier findings (Argonne 2011).

3.2 Analytical Results for Volatile Organic Compounds in Groundwater Samples and Lateral Distribution of the Contaminants

The analytical data for VOCs in the groundwater samples collected in 2012 are in Table 3.2, together with data for previous sampling events in 2006 and 2009. The highest concentration of carbon tetrachloride in 2012 was found at well MW07 (located in the southeast portion of the former CCC/USDA facility and screened at 45-55 ft BGL). In this well, carbon tetrachloride was detected at 15 µg/L in October 2012, a concentration consistent with that found in April 2009 (12 µg/L).

The lateral distribution of carbon tetrachloride in groundwater in the sampling event in 2012 (Figure 3.1) is similar to the distribution in 2009 (Figure 2.9 in Argonne 2011). Carbon tetrachloride was not detected in either private well (Noeth or Riddle) sampled in 2012.

The distribution of chloroform in groundwater in 2012 is also similar to the distribution during previous sampling events. The highest concentration of chloroform in sitewide sampling has consistently been found at well MW07 (1.2-1.7 µg/L; Table 3.2). Well MW07 is located in the southeastern portion of the former CCC/USDA facility and is screened at 45-55 ft BGL.

TABLE 3.1 Hand-measured groundwater levels in 2009 and 2012.

		April 27, 2009		October 10-11, 2012	
Well	Reference Elevation (ft AMSL)	Depth to Water (ft BGL)	Water Level Elevation (ft AMSL)	Depth to Water (ft BGL)	Water Level Elevation (ft AMSL)
MW04	1439.52	46.0	1393.52	50.80	1388.72
MW05	1435.19	46.7	1388.49	48.80	1386.39
MW06	1436.63	49.2	1387.43	51.45	1385.18
MW07	1438.15	49.2	1388.95	51.50	1386.65
MW08	1435.72	47.0	1388.72	49.10	1386.62

TABLE 3.2 Analytical results for carbon tetrachloride, chloroform, and methylene chloride in groundwater samples collected from wells MW04-MW08 and selected private wells.[ab]

			Depth (ft BGL)		Concentration (µg/L)		
Location	Sample	Sample Date	Screen Interval	Groundwater	Carbon Tetrachloride	Chloroform	Methylene Chloride
MW04	RATI16-W-21449	7/13/2006	45-55	51	ND[c]	ND	ND
MW04	RAMW4-W-21466	4/27/2009	45-55	46	ND	ND	ND
MW04	RAMW4-W-21472	4/28/2009	45-55	-	ND	ND	ND
MW04	RAMW4-W-21495	10/11/2012	45-55	51	ND	ND	ND
MW05	RATI17-W-21450	7/13/2006	45-55	47	0.9 J[d]	0.3 J	ND
MW05	RAMW5-W-21467	4/27/2009	45-55	47	2.1	ND	ND
MW05	RAMW5-W-21473	4/28/2009	45-55	-	1.7	0.4 J	ND
MW05	RAMW5-W-21496	10/10/2012	45-55	49	1.3	0.5 J	ND
MW06	RATI18-W-21452	7/13/2006	45-55	50	1.8	1.1	ND
MW06	RAMW6-W-21468	4/27/2009	45-55	49	1.5	ND	ND
MW06	RAMW6-W-21474	4/28/2009	45-55	-	2.4	0.3 J	ND
MW06	RAMW6-W-21497	10/11/2012	45-55	51	8.2	1.0	ND
MW07	RATI19-W-21453	7/13/2006	45-55	50	6.3	1.6	ND
MW07	RAMW7-W-21469	4/27/2009	45-55	49	12	1.7	ND
MW07	RAMW7-W-21475	4/28/2009	45-55	-	10	1.7	ND
MW07	RAMW7-W-21498	10/11/2012	45-55	52	15	1.2	ND
MW08	RATI20-W-21451	7/13/2006	45-55	47	0.7 J	ND	ND
MW08	RAMW8-W-21470	4/27/2009	45-55	47	ND	ND	ND
MW08	RAMW8-W-21476	4/28/2009	45-55	-	0.8 J	ND	ND
MW08	RAMW8-W-21499	10/10/2012	45-55	49	1.0	ND	ND
Noeth	–	06/23/1992	–	–	< 0.1	< 0.1	–
Noeth	–	06/11/1994	–	–	< 5.0	< 5.0	–
Noeth	–	06/11/1999	–	–	< 5.0	< 5.0	–
Noeth	RANOETH-W-21501	10/10/2012	–	–	ND	ND	ND –
Riddle	–	06/23/1992	–	–	0.1	0.1	–
Riddle	–	08/13/1998	–	–	< 1.2	< 0.5	–
Riddle	RARIDDLE-W-21503	10/10/2012	–	–	ND	ND	ND
Svoboda	–	06/23/1992	–	–	0.1	< 0.1	–
Svoboda	–	06/11/1994	–	–	1.7	< 5.0	–
Svoboda	–	06/12/1999	–	–	< 5.0	< 5.0	–
Svoboda	Not sampled[e]	10/10/2012	–	–	–	–	–

[a] Because of the low productivity of the monitoring wells at Ramona, the following sampling strategy was used in April 2009: (1) a sample of the water available in each well casing was obtained; (2) the well was purged of three well volumes or to the extent possible; and (3) a second sample was collected after the well had recovered. In October 2012, samples were collected according to procedures in the *Monitoring Plan* (Argonne 2012).

[b] The private wells now owned by Noeth, Riddle, and Svoboda were formerly owned by Chartier, Bura, and Buxman, respectively. The private well sampling was conducted in 1992 by the EPA, in 1994 by the CCC/USDA, and in 1998 and 1999 by the KDHE. Results for methylene chloride were not reported for these events, and the analyses reported here were conducted in off-site laboratories. The notation < 0.1 for these events indicates that the analyte was not detected at the limit indicated. In 2012 the private wells were sampled by the CCC/USDA, and samples were analyzed at the AGEM Laboratory.

[c] ND, not detected at instrument detection limit of 0.1 µg/L.

[d] Qualifier J indicates an estimated concentration below the purge-and-trap method quantitation limit of 1.0 µg/L.

[e] The pump in the Svoboda well was not operational in 2012 and would have required removal for sampling. Pump removal was not authorized by the resident.

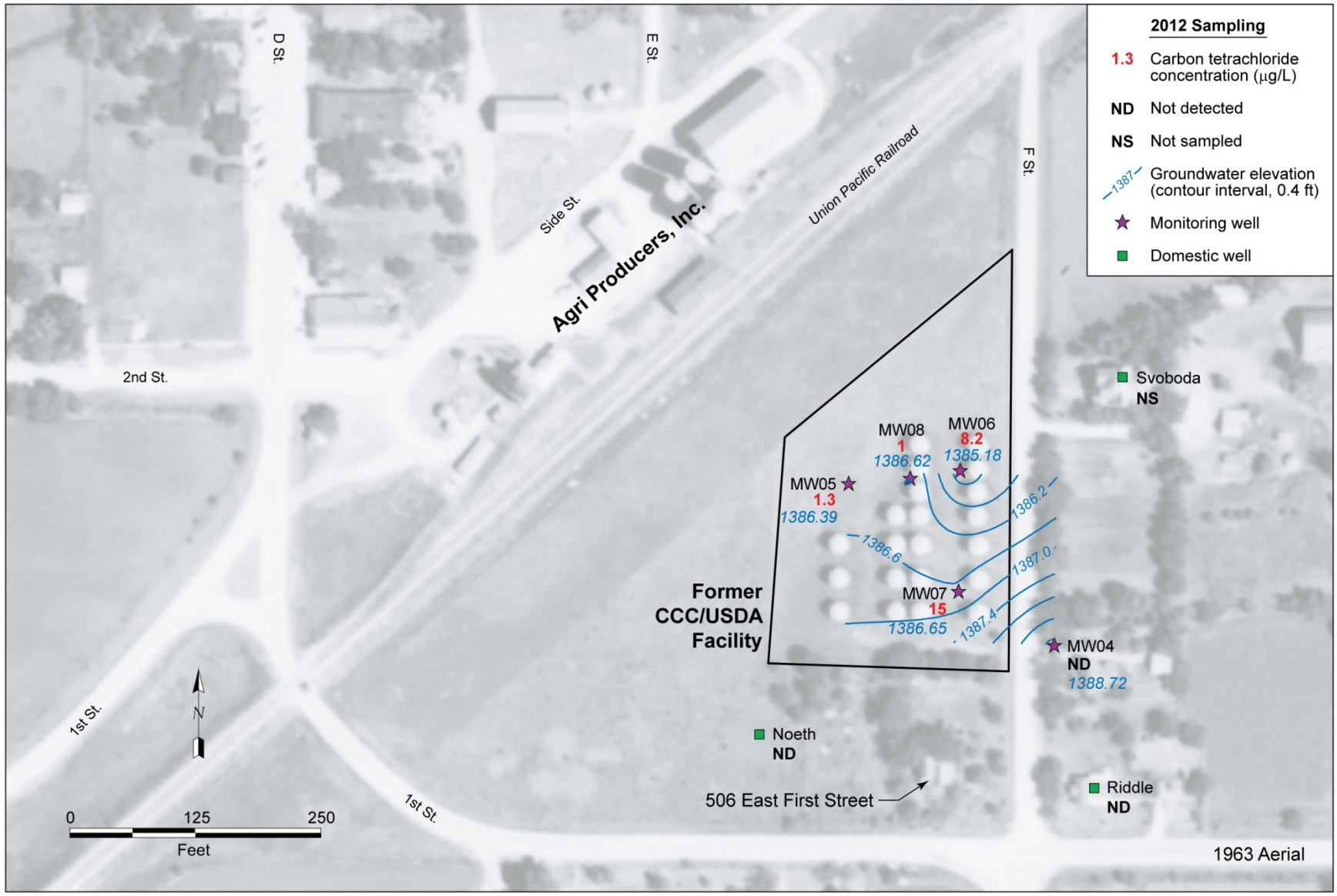

FIGURE 3.1 Distribution of carbon tetrachloride in groundwater samples collected in 2012, with potentiometric surface interpreted from manual groundwater measurements made on October 10-11, 2012.

4 Conclusions and Recommendations

4.1 Conclusions

The findings of the 2012 monitoring event at Ramona support the following conclusions:

- The site and the groundwater flow direction are well-characterized. The potentiometric surface and groundwater flow direction determined remain consistent with previous findings.

- The contamination on the former CCC/USDA property appears to be confined in proximity to the property boundaries. To date, carbon tetrachloride concentrations slightly exceeding the MCL for this contaminant (5.0 µg/L) have been detected at only two locations (MW06 and MW07) on the property. Carbon tetrachloride has not been detected at unacceptable levels at the remaining monitoring points or private wells identified in the KDHE-approved *Long-Term Monitoring Plan* (Argonne 2012), within or outside the former facility boundaries.

- Although concentrations of volatile organics detected to date do not demonstrate a clear upward trend, the fluctuating levels result in a degree of uncertainty regarding the potential for expansion of contaminated groundwater.

- Potential receptors (Noeth and Svoboda) have a clean drinking water supply. Carbon tetrachloride levels exceeding the MCL are limited to the former CCC/USDA facility, with no indication of off-site migration during the past 19 years.

4.2 Recommendations

The findings of the 2012 monitoring support the following recommended actions:

- After the 2013 monitoring event, install a dedicated monitoring well near the Svoboda private well and an additional monitoring well north-northeast of MW06 and MW08. Sample the new wells according to the scope and schedule for monitoring wells established in the *Long-Term Monitoring Plan* (Argonne 2012).

- After the 2013 monitoring event, consult with the KDHE to evaluate the schedule of manual water level measurement and sampling. The monitoring requirements are defined in the *Long-Term Groundwater Monitoring Plan* (Argonne 2012). Under that plan, sampling is to occur in year 2 (2013); year 3, if needed (2014); year 5 (2016); and year 10 (2021). Sampling in 2014 is recommended to increase confidence in analytical results east of the former CCC/USDA facility.

- In view of the absence of contamination in the Noeth and Riddle private wells, resample these wells at five-year intervals (in 2016 and 2021), unless results for the monitoring well network indicate a change in contaminant concentrations or groundwater flow direction. Sample MW09 in lieu of the Svoboda private well.

- Conduct annual evaluations of the use and condition of the Svoboda, Noeth, and Alcorn (formerly Riddle) wells.

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USGS, 1963, aerial photograph AYG-2DD-253, U.S. Geological Survey, Washington, D.C., August 2.

Appendix A:

Sampling Activities and Field Measurements in 2012

TABLE A.1 Sequence of groundwater sampling activities at Ramona in 2012.[a]

Sample Date and Time		Location	Sample	Type[b]	Depth (ft BGL)	Sample Description
10/10/12	15:00	QC	RAQCTB-W-21504[c]	TB	–	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on chain-of-custody form 6832.
10/10/12	15:34	QC	RAQCIR-W-21500[c]	RI	–	Rinsate of decontaminated sampling line after collection of sample RAMW5GRAB-W-21491.
10/10/12	16:50	MW08	RAMW8-W-21499	MW	45-55	Depth to water = 49.10 ft. Depth of well = 55 ft. Sample collected by using Waterra pump after purging of 2.73 L. Pump intake positioned at 50 ft.
10/10/12	17:38	Riddle	RARIDDLE-W-21503	DW	–	Sample collected from Riddle domestic well after purging of 50 gal.
10/10/12	17:42	MW05	RAMW5-W-21496	MW	45-55	Depth to water = 48.80 ft. Depth of well = 55 ft. Sample collected by using Waterra pump after purging of 3 L. Pump intake positioned at 50 ft.
10/10/12	17:42	MW05	RAMW5-W-21496DUP[c]	MW	45-55	Duplicate laboratory analysis of sample RAMW5-W-21496.
10/10/12	18:00	Noeth	RANOETH-W-21501	DW	–	Sample collected from faucet on south side of Noeth home, after allowing faucet to run for 5 min. Faucet is connected to well in basement.
10/11/12	9:44	MW06	RAMW6-W-21497	MW	45-55	Depth to water = 51.45 ft. Depth of well = 55 ft. Sampled after well was purged dry with Waterra pump (0.6 L).
10/11/12	9:50	MW07	RAMW7-W-21498	MW	45-55	Depth to water = 51.50 ft. Depth of well = 55 ft. Sampled after well was purged dry with Waterra pump (0.5 L).
10/11/12	10:00	MW04	RAMW4-W-21495	MW	45-55	Depth to water = 50.80 ft. Depth of well = 55 ft. Sampled after well was purged dry with Waterra pump (0.5 L).

[a] Samples were shipped to the laboratories on October 11, 2012, at 19:00 hours, as documented on chain-of-custody form 6832.

[b] Sample types: DW, domestic well; MW, monitoring well; RI, rinsate; TB, trip blank.

[c] Quality control sample.

TABLE A.2 Field measurements for groundwater samples collected in 2012.

Well	Screen Interval (ft BGL)	Sample Date and Time	Temperature (°C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
MW04	45-55	10/11/12 10:00	16.33	7.33	769	8.16	139.2
MW05	45-55	10/10/12 17:42	15.01	7.13	634	7.87	121.0
MW06	45-55	10/11/12 9:44	16.61	7.39	580	7.07	112.5
MW07	45-55	10/11/12 9:50	15.54	7.24	653	7.01	112.5
MW08	45-55	10/10/12 16:50	15.34	7.12	595	7.57	185.7

Appendix B:

Results from the AGEM Laboratory for Dual Analyses of Samples Collected in 2012 and for Quality Control Samples

TABLE B.1 Analytical results from the AGEM Laboratory for quality control samples collected to monitor sample collection and handling activities in 2012.

Sample Date and Time		Location	Sample	Depth (ft BGL)	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
10/10/12	17:42	MW5	RAMW5-W-21496	45-55	1.3	0.5 J[a]	ND[b]
10/10/12	17:42	MW5	RAMW5-W-21496DUP	45-55	1.2	ND	ND
10/10/12	15:00	QC	RAQCTB-W-21504	–	ND	ND	ND
10/10/12	15:34	QC	RAQCIR-W-21500	–	ND	ND	ND

[a] Qualifier J indicates an estimated concentration below the method quantitation limit of 1.0 µg/L.

[b] ND, not detected at an instrument detection limit of 0.1 µg/L.

TABLE B.2 Results for verification organic analyses during groundwater monitoring in 2012.

Location	Sample	Sample Date and Time	Concentration (μg/L)					
			AGEM Laboratory			TestAmerica[a]		
			Carbon Tetrachloride	Chloroform	Methylene Chloride	Carbon Tetrachloride	Chloroform	Methylene Chloride
MW6	RAMW6-W-21497	10/11/12 9:44	8.2	1.0	ND[b]	5.2 B	0.77	ND
MW7	RAMW7-W-21498	10/11/12 9:50	15	1.2	ND	8.2 B	0.82	ND
NOETH	RANOETH-W-21501	10/10/12 18:00	ND	ND	ND	0.017 J B	ND	ND
QC	RAQCTB-W-21504	10/10/12 15:00	ND	ND	ND	0.02 J B	ND	ND

[a] TestAmerica data qualifiers:

B Analyte found in an associated blank, as well as in the sample.
J Estimated value below the method detection limit of 0.5 μg/L for EPA Method SOM01 — trace volatiles.

[b] ND, not detected a method detection limit of 1.0 μg/L for the AGEM Laboratory or 0.5 μg/L for TestAmerica.

Supplement 1:

Sample Documentation from TestAmerica Laboratories, Inc.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 200-13190-1

SDG Number: 200-13190

Job Description: Ramona (200-13190)

Contract Number: 1E-30401

For:
Argonne National Laboratory
9700 South Cass Avenue
Building 203
Office B-149
Argonne, IL 60439

Attention: Ms. Esther Bowen

Approved for release.
Kirk F Young
Project Manager I
10/24/2012 12:23 PM

Kirk F Young
Project Manager I
kirk.young@testamericainc.com
10/24/2012

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Table of Contents

CASE NARRATIVE

Client: Argonne National Laboratory

Project: Ramona (200-13190)

Report Number: 200-13190-1

Enclosed is the data set for the referenced project work. With the exceptions noted as flags or footnotes, standard analytical protocols were followed in performing the analytical work and the applied control limits were met.

Calculations were performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Receipt

The samples were received on 10/12/2012. Documentation of the condition of the samples at the time of their receipt and any exception to the laboratory's Sample Acceptance Policy is documented in the Shipping Documentation section of this submittal. The samples, as received, were not acid preserved. On that basis, the laboratory did provide for the analysis of the samples within seven days of sample collection.

SOM01.2 Volatile Organics (Trace Level Water)

A storage blank was prepared for volatile organics analysis, and stored in association with the storage of the samples. That storage blank, identified as VHBLK01, was carried through the holding period with the samples, and analyzed.

Samples RAMW6-W-21497 and RAMW7-21498 were analyzed at a 1.1-fold dilution. It was not possible to provide for an additional, more concentrated analysis of those samples due to the constraints of sample volume.

Each of the analyses associated with the sample set exhibited an acceptable internal standard performance, and there was an acceptable recovery of each deuterated monitoring compound (DMC) in each analysis. Matrix spike and matrix spike duplicate analyses were not performed on samples in this sample set. Trace concentrations of carbon disulfide and carbon tetrachloride were identified in the analysis of the method blank associated with the analytical work. The concentration of each target analyte in that analysis was below the established reporting limit, and the analysis did meet the technical acceptance criteria for a compliant method blank analysis. A trace concentration of carbon tetrachloride was identified in the analysis of the storage blank associated with the sample set. The concentration of carbon tetrachloride in that analysis was below the established reporting limit, and the analysis did meet the technical acceptance criteria for a compliant storage blank analysis. Present in the method blank and storage blank analyses was a non-target constituent that represents a compound that is related to the DMC formulation. The fact that the presence of this compound is not within the laboratory's control is at issue. The derived results for that compound have been qualified with an "X" qualifier to reflect the source of the contamination.

The responses for each of the target analytes met the relative standard deviation criterion in

the initial calibration. The response for each target analyte met the percent difference criterion in the opening/continuing calibration check acquisition. The response for each target analyte met the 50.0 percent difference criterion in the closing calibration check acquisition.

The primary quantitation mass for methylcyclohexane that is specified in the Statement of Work is mass 83. The laboratory did identify a contribution to mass 83 from 1,2-dichloropropane-d_6, one of the deuterated monitoring compounds (DMCs). The laboratory did change the primary quantitation mass assignment to mass 55 for the quantification of methylcyclohexane.

Manual integration was employed in deriving certain of the analytical results. The values that have been derived from manual integration are qualified on the quantitation reports. Extracted ion current profiles for each manual integration are included in the data package, and further documented at the end of this submittal.

DATA REPORTING QUALIFIERS

Client: Argonne National Laboratory

Job Number: 200-13190-1
Sdg Number: 200-13190

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Analyzed for but not detected.
	J	Indicates an Estimated Value for TICs
	J	Indicates an estimated value.
	X	See case narrative notes for explanation of the 'X' flag
	B	The analyte was found in an associated blank, as well as in the sample.
	N	This flag indicates the presumptive evidence of a compound.

Argonne NATIONAL LABORATORY

6833

MATRIX: WATER	**ARGONNE NATIONAL LABORATORY CHAIN OF CUSTODY RECORD***	Shipping Container:
RECEIVING LAB: TEST AMERICA		Shipping Info:
PROJECT/SITE: RAMONA, KS		Field Contact (Name & Temporary Phone):
SAMPLER(S) (Signature)		

DATE OF COLLECTION	SAMPLE ID NUMBER(S)	Number of containers	ANALYSIS: VOCs	REMARKS
10 - 10 - 12	RANOETH-W-21501	2	2	2-40mL for VOCs to TA
10 - 10 - 12	RAQCTB-W-21504	2	2	" " "
10 - 11 - 12	RAMW6-W-21497	2	2	" " "
10 - 11 - 12	RAMW7-W-21498	2	2	2-40mL for VOCs to TA

Relinquished by (Signature)	Date	Time	Received by (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
	10/11/12	19:00	THOUK 10/12/12 0950				

Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time	Remarks

Y	N	FOR LAB USE ONLY
		Custody seal was intact when shipment received.
		Sample containers were intact when received.
		Shipment was at required temperature when received.
		Sample labels, Tags and COC agree.

*A sample is under custody if:

1. It is in your possession; or,
2. It is in your view, after having been in your possession; or,
3. It was in your possession and you locked it up; or,
4. It is in a designated secure area.

Argonne National Laboratory, Applied Geosciences & Environmental Mgt. Group, Environmental Science Division, 9700 S. Cass Avenue, Argonne, IL 60439

EVS-160 (6-07)

TestAmerica Burlington

INTERNAL CHAIN OF CUSTODY LOG (ICOC)

Project Information:

Log In #: 200-13190	Method: SOM01.2_VOL_TR
Client: ARGONNE	LAB IDs: 200-13190-1 THROUGH 5

Samples associated with this log-in were placed into storage on 10/12/2012 (Date) 1454 (Time[2]) by: [signature]

Sample Custodian Signature

Storage Location: VA15 *Specify storage location (refrigerator, freezer ID or lab location) for original sample containers*

Storage Condition: ☒ Refrigeration ☐ Frozen Ambient

Internal Transfer Information

Sample Type		Lab ID(s)	Transfer	Transfer	Purpose of Transfer			Relinquished	Received	Storage Location
Original	Prepared[1]		Date	Time[2]	Prep	Analysis	Storage	By:	By:	Prepared Sample[1]
✓		200-13190-1-5	10/12/12	1530		✓		[signature]	[signature]	Screen
✓		" "	10/12/12	1600			✓	[signature]	[signature]	Storage
✓		200-13190-1-5	10/17/12	0940		✓		[signature]	[signature]	Analysis
✓		" "	10/17/12	1030			✓	[signature]	[signature]	Storage

[1] Extract, digestate, or any other prepared sample that is no longer in original sample container

[2] Military Time

Shipping and Receiving Documents

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8757 9219 2677

0200 Form ID No.

FedEx Retrieval Copy

1 From

Date _____ Sender's FedEx Account Number _____

Sender's Name _____ Phone _____

Company _____

Address _____ Dept/Floor/Suite/Room

City _____ State _____ ZIP _____

2 Your Internal Billing Reference

3 To

Recipient's Name _____ Phone _____

Company _____

Address _____ Dept/Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.

01 ☐ HOLD Weekday
FedEx location address REQUIRED. NOT available for FedEx First Overnight.

Address _____
Use this line for the HOLD location address or for continuation of your shipping address.

31 ☐ HOLD Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

City _____ State _____ ZIP _____

8757 9219 2677

4 Express Package Service * To most locations. Packages up to 150 lbs.
NOTE: Service order has changed. Please select carefully. For packages over 150 lbs., use the appropriate FedEx Express Freight US Airbill.

Most Business Days

06 ☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

01 ☑ FedEx Priority Overnight
Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

05 ☐ FedEx Standard Overnight
Next business afternoon.* Saturday Delivery NOT available.

2nd Business Days

30 ☐ NEW FedEx 2Day A.M.
Second business morning.* Saturday Delivery NOT available.

03 ☐ FedEx 2Day
Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver
Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500

06 ☐ FedEx Envelope* 02 ☐ FedEx Pak* 03 ☐ FedEx Box 04 ☑ FedEx Tube 07 ☐ Other

6 Special Handling and Delivery Signature Options

03 ☐ SATURDAY DELIVERY

☑ No Signature Required
Package may be left without obtaining a signature for delivery.

10 ☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.

34 ☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.

☑ No 04 ☐ Yes
As per attached Shipper's Declaration.

☐ Yes
Shipper's Declaration not required.

09 ☐ Dry Ice
Dry Ice, 9, UN 1845

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip. Acct. No. ☐

1 ☑ Sender Acct. No. in Section 1 will be billed. 2 ☐ Recipient 3 ☐ Third Party 4 ☐ Credit Card 5 ☐ Cash/Check

Total Packages _____ Total Weight _____ lbs.

Credit Card Auth.

* Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

612

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Login Sample Receipt Checklist

Client: Argonne National Laboratory

Job Number: 200-13190-1
SDG Number: 200-13190

Login Number: 13190
List Number: 1
Creator: Kirchner, Benjamin

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	NO NUMBERS
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.3ºC, IR GUN ID 181, CF +0.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	Times listed only on container labels
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Sample volumes were received unpreserved.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Sample Login Acknowledgement

Job 200-13190-1

Client Job Description:	Ramona (200-13190)	**Report To:**	Argonne National Laboratory Jorge Alvarado 9700 South Cass Avenue Building 203 Office B-149 Argonne, IL 60439
Purchase Order #:	1E-30401		
Work Order #:	1E-30401		
Project Manager:	Kirk F Young		
Job Due Date:	10/26/2012		
Job TAT:	14 Days		
Max Deliverable Level:	IV	**Bill To:**	Argonne National Laboratory Accounts Payable Chief Financial Offices 9700 S. Cass Ave. Building 201 Argonne, IL 60439
Earliest Deliverable Due:	10/26/2012		

Login 200-13190

Sample Receipt:	10/12/2012 9:50:00 AM	**Number of Coolers:**	1
Method of Delivery:	FedEx Priority Overnight	**Cooler Temperature(s) (C°):**	4.3;

Lab Sample # / Method	Client Sample ID / Method Description / Work Location	Date Sampled	Matrix	Rpt Basis	Dry / Wet **
200-13190-1	**RANOETH-W-21501**	**10/10/2012 6:00:00 PM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet
200-13190-2	**RAQCTB-W-21504**	**10/10/2012 3:00:00 PM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet
200-13190-3	**RAMW6-W-21497**	**10/11/2012 9:44:00 AM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet
200-13190-4	**RAMW7-21498**	**10/11/2012 9:50:00 AM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet
200-13190-5	**VHBLK01**	**10/12/2012 2:45:00 PM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet

* Method on-hold

** Wet/Dry indicates whether the reported results will be corrected for moisture content based on sample Wet weight or Dry

METHODOLOGY SUMMARY

Laboratory:	TestAmerica Laboratories	Project No:	
Location:	South Burlington, Vermont	SDG No:	200-13190

VOA

Volatile Organics Trace - USEPA CLP SOM01.2

2A - FORM II VOA-1
WATER VOLATILE DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Level: (TRACE or LOW) TRACE

	EPA SAMPLE NO.	VDMC1 (VCL) #	VDMC2 (CLA) #	VDMC3 (DCE) #	VDMC4 (BUT) #	VDMC5 (CLF) #	VDMC6 (DCA) #	VDMC7 (BEN) #
01	VBLKDW	77	90	75	98	92	97	95
02	RANOETH-W-21501	77	89	75	100	89	86	96
03	RAQCTB-W-21504	78	90	76	112	93	96	96
04	RAMW6-W-21497	79	92	77	113	91	93	94
05	RAMW7-21498	77	93	77	121	94	97	94
06	VHBLK01	74	86	73	92	88	91	89

			QC LIMITS
VDMC1	(VCL)	= Vinyl Chloride-d3	(65-131)
VDMC2	(CLA)	= Chloroethane-d5	(71-131)
VDMC3	(DCE)	= 1,1-Dichloroethene-d2	(55-104)
VDMC4	(BUT)	= 2-Butanone-d5	(49-155)
VDMC5	(CLF)	= Chloroform-d	(78-121)
VDMC6	(DCA)	= 1,2-Dichloroethane-d4	(78-129)
VDMC7	(BEN)	= Benzene-d6	(77-124)

Column to be used to flag recovery values
* Values outside of contract required QC limits

2B - FORM II VOA-2
WATER VOLATILE DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: _____ SDG No.: 200-13190

Level: (TRACE or LOW) TRACE

	EPA SAMPLE NO.	VDMC8 (DPA) #	VDMC9 (TOL) #	VDMC10 (TDP) #	VDMC11 (HEX) #	VDMC12 (TCA) #	VDMC13 (DCZ) #	OTHER	TOT OUT
01	VBLKDW	96	96	91	95	91	99		0
02	RANOETH-W-21501	93	98	84	100	83	96		0
03	RAQCTB-W-21504	96	98	89	108	88	98		0
04	RAMW6-W-21497	93	95	89	108	87	95		0
05	RAMW7-21498	97	95	93	116	93	99		0
06	VHBLK01	91	91	84	89	80	93		0

		QC LIMITS
VDMC8 (DPA)	= 1,2-Dichloropropane-d6	(79-124)
VDMC9 (TOL)	= Toluene-d8	(77-121)
VDMC10 (TDP)	= trans-1,3-Dichloropropene-d4	(73-121)
VDMC11 (HEX)	= 2-Hexanone-d5	(28-135)
VDMC12 (TCA)	= 1,1,2,2-Tetrachloroethane-d2	(73-125)
VDMC13 (DCZ)	= 1,2-Dichlorobenzene-d4	(80-131)

Column to be used to flag recovery values
* Values outside of contract required QC limits

Report 1,4-Dioxane-d8 for Low-Medium VOA analysis only

4A - FORM IV VOA
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.
VBLKDW

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: _____ SDG No.: 200-13190

Lab File ID: DJAB04.D Lab Sample ID: MB 200-46614/4

Instrument ID: D.i

Matrix: (SOIL/SED/WATER) Water Date Analyzed: 10/17/2012

Level: (TRACE or LOW/MED) TRACE Time Analyzed: 1024

GC Column: DB-624 ID: 0.20 (mm) Heated Purge: (Y/N) N

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	RANOETH-W-21501	200-13190-1	DJAB05.D	1050
02	RAQCTB-W-21504	200-13190-2	DJAB06.D	1113
03	RAMW6-W-21497	200-13190-3	DJAB09.D	1325
04	RAMW7-21498	200-13190-4	DJAB10.D	1349
05	VHBLK01	200-13190-5	DJAB11.D	1413

COMMENTS: _____

5A - FORM V VOA
VOLATILE ORGANICS INSTRUMENT
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

EPA SAMPLE NO.
BFBDU

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Lab File Id: DJA02.D BFB Injection Date: 10/01/2012

Instrument Id: D.i BFB Injection Time: 1148

GC Column: DB-624 ID: 0.20 (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.3
75	30.0 - 80.0% of mass 95	50.2
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0 (0)1
174	50.0 - 120% of mass 95	64.7
175	5.0 - 9.0% of mass 174	4.6 (7.2)1
176	95.0 - 101% of mass 174	62.9 (97.2)1
177	5.0 - 9.0% of mass 176	4.0 (6.4)2

1 - Value is %mass 174 2 - Value is %mass 176

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0.5DU	IC 200-45748/6	DJA06.D	10/01/2012	1452
02	VSTD001DU	IC 200-45748/7	DJA07.D	10/01/2012	1515
03	VSTD005DU	ICIS 200-45748/8	DJA08.D	10/01/2012	1539
04	VSTD010DU	IC 200-45748/9	DJA09.D	10/01/2012	1603
05	VSTD020DU	IC 200-45748/10	DJA10.D	10/01/2012	1627

5A - FORM V VOA
VOLATILE ORGANICS INSTRUMENT
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

EPA SAMPLE NO.
BFBDW

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Lab File Id: DJAB01.D BFB Injection Date: 10/17/2012

Instrument Id: D.i BFB Injection Time: 0922

GC Column: DB-624 ID: 0.20 (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.6
75	30.0 - 80.0% of mass 95	50.8
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.6 (1.0)1
174	50.0 - 120% of mass 95	60.4
175	5.0 - 9.0% of mass 174	4.4 (7.2)1
176	95.0 - 101% of mass 174	58.0 (95.9)1
177	5.0 - 9.0% of mass 176	3.8 (6.6)2

1 - Value is %mass 174 2 - Value is %mass 176

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005DW	CCVIS 200-46614/2	DJAB02.D	10/17/2012	0936
02	VBLKDW	MB 200-46614/4	DJAB04.D	10/17/2012	1024
03	RANOETH-W-21501	200-13190-1	DJAB05.D	10/17/2012	1050
04	RAQCTB-W-21504	200-13190-2	DJAB06.D	10/17/2012	1113
05	RAMW6-W-21497	200-13190-3	DJAB09.D	10/17/2012	1325
06	RAMW7-21498	200-13190-4	DJAB10.D	10/17/2012	1349
07	VHBLK01	200-13190-5	DJAB11.D	10/17/2012	1413
08	VSTD005WD	CCVC 200-46614/12	DJAB12.D	10/17/2012	1437

8A - FORM VIII VOA
VOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

GC Column: DB-624 ID: 0.20 (mm) Init. Calib. Date(s): 10/01/2012 10/01/2012

EPA Sample No.(VSTD#####): VSTD005DW Date Analyzed: 10/17/2012

Lab File ID (Standard): DJAB02.D Time Analyzed: 0936

Instrument ID: D.i Heated Purge: (Y/N) N

		IS1 (CBZ) AREA	#	RT	#	IS2 (DFB) AREA	#	RT	#	IS3 (DCB) AREA	#	RT	#
	12 HOUR STD	728468		9.60		874770		6.24		307733		12.41	
	UPPER LIMIT	1019855		9.93		1224678		6.57		430826		12.74	
	LOWER LIMIT	437081		9.27		524862		5.91		184640		12.08	
	EPA SAMPLE NO.												
01	VBLKDW	650752		9.60		772350		6.25		249930		12.41	
02	RANOETH-W-21501	709110		9.60		877294		6.25		259405		12.41	
03	RAQCTB-W-21504	620751		9.60		746916		6.24		233411		12.41	
04	RAMW6-W-21497	765006		9.60		903722		6.24		287616		12.41	
05	RAMW7-21498	757294		9.60		890413		6.24		293416		12.41	
06	VHBLK01	653791		9.60		773179		6.25		242878		12.41	

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = 140% (Trace Volatiles) of internal standard area
AREA LOWER LIMIT = 60% (Trace Volatiles) of internal standard area
RT UPPER LIMIT = + 0.33 (Trace Volatiles) minutes of internal standard RT
RT LOWER LIMIT = - 0.33 (Trace Volatiles) minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
RAMW6-W-21497

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-3

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB09.D

Level: (TRACE/LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.1

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.55	U
74-87-3	Chloromethane	0.55	U
75-01-4	Vinyl chloride	0.55	U
74-83-9	Bromomethane	0.55	U
75-00-3	Chloroethane	0.55	U
75-69-4	Trichlorofluoromethane	0.55	U
75-35-4	1,1-Dichloroethene	0.55	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.55	U
67-64-1	Acetone	1.9	J
75-15-0	Carbon disulfide	0.078	J B
79-20-9	Methyl acetate	0.55	U
75-09-2	Methylene Chloride	0.55	U
156-60-5	trans-1,2-Dichloroethene	0.55	U
1634-04-4	Methyl tert-butyl ether	0.55	U
75-34-3	1,1-Dichloroethane	0.55	U
156-59-2	cis-1,2-Dichloroethene	0.55	U
78-93-3	2-Butanone	5.5	U
74-97-5	Bromochloromethane	0.55	U
67-66-3	Chloroform	0.77	
71-55-6	1,1,1-Trichloroethane	0.55	U
110-82-7	Cyclohexane	0.55	U
56-23-5	Carbon tetrachloride	5.2	B
71-43-2	Benzene	0.55	U
107-06-2	1,2-Dichloroethane	0.55	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
RAMW6-W-21497

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-3

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB09.D

Level: (TRACE/LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.1

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.55	U
108-87-2	Methylcyclohexane	0.55	U
78-87-5	1,2-Dichloropropane	0.55	U
75-27-4	Bromodichloromethane	0.55	U
10061-01-5	cis-1,3-Dichloropropene	0.55	U
108-10-1	4-Methyl-2-pentanone	5.5	U
108-88-3	Toluene	0.038	J
10061-02-6	trans-1,3-Dichloropropene	0.55	U
79-00-5	1,1,2-Trichloroethane	0.55	U
127-18-4	Tetrachloroethene	0.55	U
591-78-6	2-Hexanone	5.5	U
124-48-1	Dibromochloromethane	0.55	U
106-93-4	1,2-Dibromoethane	0.55	U
108-90-7	Chlorobenzene	0.55	U
100-41-4	Ethylbenzene	0.015	J
95-47-6	o-Xylene	0.019	J
179601-23-1	m,p-Xylene	0.048	J
100-42-5	Styrene	0.15	J
75-25-2	Bromoform	0.55	U
98-82-8	Isopropylbenzene	0.0091	J
79-34-5	1,1,2,2-Tetrachloroethane	0.55	U
541-73-1	1,3-Dichlorobenzene	0.55	U
106-46-7	1,4-Dichlorobenzene	0.55	U
95-50-1	1,2-Dichlorobenzene	0.55	U
96-12-8	1,2-Dibromo-3-Chloropropane	0.55	U
120-82-1	1,2,4-Trichlorobenzene	0.55	U
87-61-6	1,2,3-Trichlorobenzene	0.55	U

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
RAMW6-W-21497

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-3

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB09.D

Level: (TRACE or LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.1

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:(ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	7.56	3.6	B X J
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
RAMW7-21498

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-4

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB10.D

Level: (TRACE/LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.1

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.55	U
74-87-3	Chloromethane	0.55	U
75-01-4	Vinyl chloride	0.55	U
74-83-9	Bromomethane	0.55	U
75-00-3	Chloroethane	0.55	U
75-69-4	Trichlorofluoromethane	0.55	U
75-35-4	1,1-Dichloroethene	0.55	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.55	U
67-64-1	Acetone	4.1	J
75-15-0	Carbon disulfide	0.057	J B
79-20-9	Methyl acetate	0.55	U
75-09-2	Methylene Chloride	0.55	U
156-60-5	trans-1,2-Dichloroethene	0.55	U
1634-04-4	Methyl tert-butyl ether	0.55	U
75-34-3	1,1-Dichloroethane	0.55	U
156-59-2	cis-1,2-Dichloroethene	0.55	U
78-93-3	2-Butanone	6.5	
74-97-5	Bromochloromethane	0.55	U
67-66-3	Chloroform	0.82	
71-55-6	1,1,1-Trichloroethane	0.55	U
110-82-7	Cyclohexane	0.55	U
56-23-5	Carbon tetrachloride	8.2	B
71-43-2	Benzene	0.55	U
107-06-2	1,2-Dichloroethane	0.55	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
RAMW7-21498

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-4

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB10.D

Level: (TRACE/LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.1

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.55	U
108-87-2	Methylcyclohexane	0.55	U
78-87-5	1,2-Dichloropropane	0.55	U
75-27-4	Bromodichloromethane	0.55	U
10061-01-5	cis-1,3-Dichloropropene	0.55	U
108-10-1	4-Methyl-2-pentanone	5.5	U
108-88-3	Toluene	0.049	J
10061-02-6	trans-1,3-Dichloropropene	0.55	U
79-00-5	1,1,2-Trichloroethane	0.55	U
127-18-4	Tetrachloroethene	0.55	U
591-78-6	2-Hexanone	5.5	U
124-48-1	Dibromochloromethane	0.55	U
106-93-4	1,2-Dibromoethane	0.55	U
108-90-7	Chlorobenzene	0.55	U
100-41-4	Ethylbenzene	0.020	J
95-47-6	o-Xylene	0.029	J
179601-23-1	m,p-Xylene	0.071	J
100-42-5	Styrene	0.27	J
75-25-2	Bromoform	0.55	U
98-82-8	Isopropylbenzene	0.012	J
79-34-5	1,1,2,2-Tetrachloroethane	0.55	U
541-73-1	1,3-Dichlorobenzene	0.55	U
106-46-7	1,4-Dichlorobenzene	0.55	U
95-50-1	1,2-Dichlorobenzene	0.55	U
96-12-8	1,2-Dibromo-3-Chloropropane	0.55	U
120-82-1	1,2,4-Trichlorobenzene	0.55	U
87-61-6	1,2,3-Trichlorobenzene	0.55	U

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
RAMW7-21498

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-4

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB10.D

Level: (TRACE or LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.1

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:(ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	7.56	3.8	B X J
02	5989-27-5	D-Limonene	12.34	0.97	J N
03	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
RANOETH-W-21501

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-1

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB05.D

Level: (TRACE/LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.46	J
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	2.3	J
75-15-0	Carbon disulfide	0.060	J B
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.017	J B
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
RANOETH-W-21501

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-1

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB05.D

Level: (TRACE/LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.0092	J
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.0039	J
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.012	J
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-Chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
RANOETH-W-21501

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-1

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB05.D

Level: (TRACE or LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:(ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	7.56	3.0	J B X
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
RAQCTB-W-21504 ,

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-2

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB06.D

Level: (TRACE/LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	2.7	J
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.020	J B
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
RAQCTB-W-21504

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-2

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB06.D

Level: (TRACE/LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.23	J
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.033	J
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.046	J
95-47-6	o-Xylene	0.041	J
179601-23-1	m,p-Xylene	0.17	J
100-42-5	Styrene	0.13	J
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-Chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
RAQCTB-W-21504

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-2

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB06.D

Level: (TRACE or LOW/MED) TRACE Date Received: 10/12/2012

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:(ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	7.56	3.3	J B X
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

6A - FORM VI VOA-1
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Instrument ID: D.i Calibration Date(s): 10/01/2012 10/01/2012

Heated Purge: (Y/N) N Calibration Time(s): 1452 1627

Purge Volume: 25.0 (mL)

GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

LAB FILE ID: RRF0.5 = DJA06.D RRF1.0 = DJA07.D

RRF5.0 = DJA08.D RRF10 = DJA09.D RRF20 = DJA10.D

COMPOUND	RRF0.5	RRF1.0	RRF5.0	RRF10	RRF20	$\overline{RRF}$	%RSD
Dichlorodifluoromethane	0.159	0.165	0.152	0.161	0.158	0.159	2.9
Chloromethane	0.289	0.257	0.227	0.225	0.217	0.243	12.4
Vinyl chloride	0.274	0.288	0.268	0.277	0.269	0.275	2.9
Bromomethane	0.211	0.236	0.233	0.252	0.256	0.237	7.5
Chloroethane	0.195	0.209	0.199	0.207	0.206	0.203	3.0
Trichlorofluoromethane	0.569	0.619	0.589	0.614	0.606	0.599	3.4
1,1-Dichloroethene	0.406	0.420	0.385	0.404	0.405	0.404	3.1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.412	0.438	0.422	0.450	0.447	0.434	3.7
Acetone	0.031	0.026	0.021	0.020	0.020	0.024	20.2
Carbon disulfide	0.849	0.838	0.784	0.816	0.823	0.822	3.0
Methyl acetate	0.050	0.055	0.051	0.049	0.051	0.051	4.1
Methylene Chloride	0.253	0.257	0.236	0.246	0.251	0.249	3.2
trans-1,2-Dichloroethene	0.304	0.320	0.310	0.327	0.332	0.319	3.6
Methyl tert-butyl ether	0.413	0.430	0.420	0.429	0.447	0.428	3.0
1,1-Dichloroethane	0.527	0.546	0.525	0.539	0.540	0.535	1.7
cis-1,2-Dichloroethene	0.299	0.322	0.316	0.329	0.336	0.320	4.4
2-Butanone	0.033	0.034	0.033	0.033	0.034	0.033	1.7
Bromochloromethane	0.092	0.093	0.092	0.096	0.102	0.095	4.6
Chloroform	0.523	0.536	0.524	0.551	0.563	0.540	3.2
1,1,1-Trichloroethane	0.592	0.625	0.617	0.653	0.646	0.627	3.9
Cyclohexane	0.710	0.751	0.688	0.714	0.693	0.711	3.5
Carbon tetrachloride	0.500	0.506	0.512	0.560	0.558	0.527	5.6
Benzene	1.533	1.686	1.594	1.668	1.649	1.626	3.8
1,2-Dichloroethane	0.253	0.274	0.265	0.275	0.292	0.272	5.4
Trichloroethene	0.397	0.409	0.396	0.428	0.425	0.411	3.6
Methylcyclohexane	0.592	0.657	0.612	0.647	0.632	0.628	4.2

Report 1,4-Dioxane for Low-Medium VOA analysis only

6B - FORM VI VOA-2
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Instrument ID: D.i Calibration Date(s): 10/01/2012 10/01/2012

Heated Purge: (Y/N) N Calibration Time(s): 1452 1627

Purge Volume: 25.0 (mL)

GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

LAB FILE ID: RRF0.5 = DJA06.D RRF1.0 = DJA07.D

RRF5.0 = DJA08.D RRF10 = DJA09.D RRF20 = DJA10.D

COMPOUND	RRF0.5	RRF1.0	RRF5.0	RRF10	RRF20	$\overline{RRF}$	%RSD
1,2-Dichloropropane	0.317	0.337	0.328	0.341	0.344	0.334	3.3
Bromodichloromethane	0.357	0.370	0.368	0.393	0.399	0.377	4.7
cis-1,3-Dichloropropene	0.436	0.474	0.467	0.490	0.491	0.472	4.8
4-Methyl-2-pentanone	0.090	0.098	0.094	0.094	0.095	0.094	3.0
Toluene	1.718	1.869	1.808	1.903	1.901	1.840	4.3
trans-1,3-Dichloropropene	0.301	0.332	0.343	0.355	0.361	0.339	7.0
1,1,2-Trichloroethane	0.154	0.168	0.162	0.166	0.169	0.164	3.8
Tetrachloroethene	0.254	0.266	0.287	0.321	0.329	0.291	11.3
2-Hexanone	0.059	0.065	0.062	0.063	0.063	0.062	3.7
Dibromochloromethane	0.159	0.167	0.184	0.199	0.210	0.184	11.7
1,2-Dibromoethane	0.129	0.143	0.143	0.150	0.153	0.144	6.4
Chlorobenzene	0.996	1.097	1.048	1.109	1.121	1.074	4.8
Ethylbenzene	1.958	2.157	2.099	2.238	2.239	2.138	5.5
o-Xylene	0.699	0.767	0.788	0.855	0.892	0.800	9.5
m,p-Xylene	0.750	0.820	0.847	0.904	0.912	0.846	7.8
Styrene	1.038	1.187	1.233	1.334	1.403	1.239	11.3
Bromoform	0.129	0.154	0.163	0.174	0.186	0.161	13.5
Isopropylbenzene	1.962	2.160	2.210	2.386	2.394	2.222	8.1
1,1,2,2-Tetrachloroethane	0.133	0.142	0.141	0.145	0.149	0.142	4.3
1,3-Dichlorobenzene	1.535	1.690	1.713	1.846	1.877	1.732	7.9
1,4-Dichlorobenzene	1.587	1.729	1.682	1.768	1.793	1.712	4.8
1,2-Dichlorobenzene	1.185	1.315	1.364	1.447	1.483	1.359	8.7
1,2-Dibromo-3-Chloropropane	0.061	0.052	0.048	0.048	0.047	0.051	11.0
1,2,4-Trichlorobenzene	0.579	0.606	0.600	0.724	0.798	0.661	14.4
1,2,3-Trichlorobenzene	0.371	0.390	0.370	0.429	0.492	0.411	12.5

6C - FORM VI VOA-3
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Instrument ID: D.i Calibration Date(s): 10/01/2012 10/01/2012

Heated Purge: (Y/N) N Calibration Time(s): 1452 1627

Purge Volume: 25.0 (mL)

GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

LAB FILE ID: RRF0.5 = DJA06.D RRF1.0 = DJA07.D

RRF5.0 = DJA08.D RRF10 = DJA09.D RRF20 = DJA10.D

COMPOUND	RRF0.5	RRF1.0	RRF5.0	RRF10	RRF20	$\overline{RRF}$	%RSD
Vinyl Chloride-d3	0.340	0.359	0.343	0.352	0.343	0.347	2.3
Chloroethane-d5	0.295	0.314	0.296	0.307	0.306	0.303	2.7
1,1-Dichloroethene-d2	0.728	0.748	0.700	0.720	0.705	0.720	2.7
2-Butanone-d5	0.031	0.032	0.031	0.030	0.030	0.031	2.6
Chloroform-d	0.536	0.569	0.553	0.578	0.592	0.565	3.8
1,2-Dichloroethane-d4	0.209	0.220	0.210	0.215	0.221	0.215	2.6
Benzene-d6	1.495	1.634	1.544	1.616	1.597	1.577	3.6
1,2-Dichloropropane-d6	0.367	0.386	0.369	0.384	0.380	0.377	2.3
Toluene-d8	1.425	1.536	1.539	1.631	1.628	1.552	5.4
trans-1,3-Dichloropropene-d4	0.275	0.310	0.313	0.326	0.332	0.311	7.2
2-Hexanone-d5	0.029	0.033	0.032	0.032	0.033	0.032	4.5
1,1,2,2-Tetrachloroethane-d2	0.142	0.142	0.145	0.149	0.153	0.146	3.4
1,2-Dichlorobenzene-d4	0.724	0.772	0.809	0.864	0.899	0.814	8.6

Report 1,4-Dioxane-d8 for Low-Medium VOA analysis only

7A - FORM VII VOA-1
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Instrument ID: D.i Calibration Date: 10/17/2012 Time: 0936

Lab File Id: DJAB02.D Init. Calib. Date(s): 10/01/2012 10/01/2012

EPA Sample No.(VSTD####): VSTD005DW Init. Calib. Time(s): 1452 1627

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
Dichlorodifluoromethane	0.159	0.153	0.010	-3.8	40.0
Chloromethane	0.243	0.212	0.010	-12.7	40.0
Vinyl chloride	0.275	0.264	0.100	-4.1	30.0
Bromomethane	0.237	0.243	0.100	2.2	30.0
Chloroethane	0.203	0.202	0.010	-0.5	40.0
Trichlorofluoromethane	0.599	0.616	0.010	2.7	40.0
1,1-Dichloroethene	0.404	0.382	0.100	-5.5	30.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.434	0.437	0.010	0.7	40.0
Acetone	0.024	0.021	0.010	-8.8	40.0
Carbon disulfide	0.822	0.770	0.010	-6.4	40.0
Methyl acetate	0.051	0.056	0.010	9.3	40.0
Methylene Chloride	0.249	0.238	0.010	-4.1	40.0
trans-1,2-Dichloroethene	0.319	0.307	0.010	-3.6	40.0
Methyl tert-butyl ether	0.428	0.393	0.010	-8.2	40.0
1,1-Dichloroethane	0.535	0.506	0.200	-5.5	30.0
cis-1,2-Dichloroethene	0.320	0.313	0.010	-2.2	40.0
2-Butanone	0.033	0.031	0.010	-5.5	40.0
Bromochloromethane	0.095	0.094	0.050	-1.2	30.0
Chloroform	0.540	0.521	0.200	-3.5	30.0
1,1,1-Trichloroethane	0.627	0.605	0.100	-3.5	30.0
Cyclohexane	0.711	0.656	0.010	-7.8	40.0
Carbon tetrachloride	0.527	0.523	0.100	-0.9	30.0
Benzene	1.626	1.539	0.400	-5.4	30.0
1,2-Dichloroethane	0.272	0.253	0.100	-6.8	30.0
Trichloroethene	0.411	0.396	0.300	-3.6	30.0
Methylcyclohexane	0.628	0.574	0.010	-8.5	40.0

Report 1,4-Dioxane for Low/Medium VOA analysis only

7B - FORM VII VOA-2
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Instrument ID: D.i Calibration Date: 10/17/2012 Time: 0936

Lab File Id: DJAB02.D Init. Calib. Date(s): 10/01/2012 10/01/2012

EPA Sample No.(VSTD####): VSTD005DW Init. Calib. Time(s): 1452 1627

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
1,2-Dichloropropane	0.334	0.315	0.010	-5.6	40.0
Bromodichloromethane	0.377	0.370	0.200	-2.0	30.0
cis-1,3-Dichloropropene	0.472	0.462	0.200	-2.2	30.0
4-Methyl-2-pentanone	0.094	0.090	0.010	-4.2	40.0
Toluene	1.840	1.789	0.400	-2.8	30.0
trans-1,3-Dichloropropene	0.339	0.333	0.100	-1.6	30.0
1,1,2-Trichloroethane	0.164	0.161	0.100	-2.0	30.0
Tetrachloroethene	0.291	0.292	0.100	0.2	30.0
2-Hexanone	0.062	0.060	0.010	-3.3	40.0
Dibromochloromethane	0.184	0.191	0.100	4.1	30.0
1,2-Dibromoethane	0.144	0.144	0.010	0.5	40.0
Chlorobenzene	1.074	1.054	0.500	-1.9	30.0
Ethylbenzene	2.138	2.054	0.100	-3.9	30.0
o-Xylene	0.800	0.785	0.300	-1.9	30.0
m,p-Xylene	0.846	0.833	0.300	-1.6	30.0
Styrene	1.239	1.209	0.300	-2.4	30.0
Bromoform	0.161	0.165	0.050	2.4	30.0
Isopropylbenzene	2.222	2.177	0.010	-2.0	40.0
1,1,2,2-Tetrachloroethane	0.142	0.141	0.100	-0.9	30.0
1,3-Dichlorobenzene	1.732	1.714	0.400	-1.0	30.0
1,4-Dichlorobenzene	1.712	1.669	0.400	-2.5	30.0
1,2-Dichlorobenzene	1.359	1.345	0.400	-1.1	30.0
1,2-Dibromo-3-Chloropropane	0.051	0.045	0.010	-12.6	40.0
1,2,4-Trichlorobenzene	0.661	0.640	0.200	-3.2	30.0
1,2,3-Trichlorobenzene	0.411	0.395	0.200	-3.8	30.0

7C - FORM VII VOA-3
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Instrument ID: D.i Calibration Date: 10/17/2012 Time: 0936

Lab File Id: DJAB02.D Init. Calib. Date(s): 10/01/2012 10/01/2012

EPA Sample No.(VSTD####): VSTD005DW Init. Calib. Time(s): 1452 1627

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
Vinyl Chloride-d3	0.347	0.334	0.010	-3.8	30.0
Chloroethane-d5	0.303	0.307	0.010	1.0	40.0
1,1-Dichloroethene-d2	0.720	0.708	0.010	-1.7	30.0
2-Butanone-d5	0.031	0.030	0.010	-2.7	40.0
Chloroform-d	0.565	0.549	0.010	-2.9	30.0
1,2-Dichloroethane-d4	0.215	0.205	0.010	-4.7	30.0
Benzene-d6	1.577	1.520	0.010	-3.6	30.0
1,2-Dichloropropane-d6	0.377	0.360	0.010	-4.5	40.0
Toluene-d8	1.552	1.532	0.010	-1.3	30.0
trans-1,3-Dichloropropene-d4	0.311	0.301	0.010	-3.3	30.0
2-Hexanone-d5	0.032	0.031	0.010	-2.9	40.0
1,1,2,2-Tetrachloroethane-d2	0.146	0.142	0.010	-2.8	30.0
1,2-Dichlorobenzene-d4	0.814	0.808	0.010	-0.7	30.0

Report 1,4-Dioxane-d8 for Low/Medium VOA analysis only

7A - FORM VII VOA-1
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Instrument ID: D.i Calibration Date: 10/17/2012 Time: 1437

Lab File Id: DJAB12.D Init. Calib. Date(s): 10/01/2012 10/01/2012

EPA Sample No.(VSTD####): VSTD005WD Init. Calib. Time(s): 1452 1627

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
Dichlorodifluoromethane	0.159	0.135	0.010	-15.2	50.0
Chloromethane	0.243	0.212	0.010	-12.8	50.0
Vinyl chloride	0.275	0.260	0.010	-5.5	50.0
Bromomethane	0.237	0.247	0.010	4.2	50.0
Chloroethane	0.203	0.201	0.010	-1.2	50.0
Trichlorofluoromethane	0.599	0.600	0.010	0.2	50.0
1,1-Dichloroethene	0.404	0.377	0.010	-6.7	50.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.434	0.420	0.010	-3.2	50.0
Acetone	0.024	0.021	0.010	-9.2	50.0
Carbon disulfide	0.822	0.667	0.010	-18.9	50.0
Methyl acetate	0.051	0.047	0.010	-8.5	50.0
Methylene Chloride	0.249	0.216	0.010	-13.0	50.0
trans-1,2-Dichloroethene	0.319	0.293	0.010	-8.2	50.0
Methyl tert-butyl ether	0.428	0.376	0.010	-12.2	50.0
1,1-Dichloroethane	0.535	0.492	0.010	-8.0	50.0
cis-1,2-Dichloroethene	0.320	0.305	0.010	-4.8	50.0
2-Butanone	0.033	0.031	0.010	-6.6	50.0
Bromochloromethane	0.095	0.089	0.010	-6.1	50.0
Chloroform	0.540	0.513	0.010	-4.9	50.0
1,1,1-Trichloroethane	0.627	0.558	0.010	-10.9	50.0
Cyclohexane	0.711	0.604	0.010	-15.1	50.0
Carbon tetrachloride	0.527	0.470	0.010	-10.9	50.0
Benzene	1.626	1.481	0.010	-8.9	50.0
1,2-Dichloroethane	0.272	0.250	0.010	-7.9	50.0
Trichloroethene	0.411	0.374	0.010	-9.0	50.0
Methylcyclohexane	0.628	0.528	0.010	-16.0	50.0

Report 1,4-Dioxane for Low/Medium VOA analysis only

7B - FORM VII VOA-2
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Instrument ID: D.i Calibration Date: 10/17/2012 Time: 1437

Lab File Id: DJAB12.D Init. Calib. Date(s): 10/01/2012 10/01/2012

EPA Sample No.(VSTD####): VSTD005WD Init. Calib. Time(s): 1452 1627

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
1,2-Dichloropropane	0.334	0.301	0.010	-9.7	50.0
Bromodichloromethane	0.377	0.349	0.010	-7.4	50.0
cis-1,3-Dichloropropene	0.472	0.435	0.010	-7.8	50.0
4-Methyl-2-pentanone	0.094	0.085	0.010	-9.2	50.0
Toluene	1.840	1.698	0.010	-7.7	50.0
trans-1,3-Dichloropropene	0.339	0.312	0.010	-7.9	50.0
1,1,2-Trichloroethane	0.164	0.156	0.010	-5.1	50.0
Tetrachloroethene	0.291	0.264	0.010	-9.4	50.0
2-Hexanone	0.062	0.057	0.010	-8.2	50.0
Dibromochloromethane	0.184	0.176	0.010	-4.3	50.0
1,2-Dibromoethane	0.144	0.137	0.010	-4.4	50.0
Chlorobenzene	1.074	0.991	0.010	-7.8	50.0
Ethylbenzene	2.138	1.944	0.010	-9.1	50.0
o-Xylene	0.800	0.745	0.010	-6.9	50.0
m,p-Xylene	0.846	0.785	0.010	-7.2	50.0
Styrene	1.239	1.163	0.010	-6.1	50.0
Bromoform	0.161	0.149	0.010	-7.3	50.0
Isopropylbenzene	2.222	2.052	0.010	-7.7	50.0
1,1,2,2-Tetrachloroethane	0.142	0.138	0.010	-3.1	50.0
1,3-Dichlorobenzene	1.732	1.612	0.010	-7.0	50.0
1,4-Dichlorobenzene	1.712	1.589	0.010	-7.2	50.0
1,2-Dichlorobenzene	1.359	1.294	0.010	-4.8	50.0
1,2-Dibromo-3-Chloropropane	0.051	0.041	0.010	-20.9	50.0
1,2,4-Trichlorobenzene	0.661	0.578	0.010	-12.6	50.0
1,2,3-Trichlorobenzene	0.411	0.341	0.010	-16.9	50.0

7C - FORM VII VOA-3
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Instrument ID: D.i Calibration Date: 10/17/2012 Time: 1437

Lab File Id: DJAB12.D Init. Calib. Date(s): 10/01/2012 10/01/2012

EPA Sample No.(VSTD####): VSTD005WD Init. Calib. Time(s): 1452 1627

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
Vinyl Chloride-d3	0.347	0.330	0.010	-4.8	50.0
Chloroethane-d5	0.303	0.301	0.010	-0.9	50.0
1,1-Dichloroethene-d2	0.720	0.706	0.010	-2.0	50.0
2-Butanone-d5	0.031	0.029	0.010	-6.0	50.0
Chloroform-d	0.565	0.539	0.010	-4.7	50.0
1,2-Dichloroethane-d4	0.215	0.202	0.010	-6.0	50.0
Benzene-d6	1.577	1.436	0.010	-9.0	50.0
1,2-Dichloropropane-d6	0.377	0.345	0.010	-8.5	50.0
Toluene-d8	1.552	1.453	0.010	-6.4	50.0
trans-1,3-Dichloropropene-d4	0.311	0.276	0.010	-11.2	50.0
2-Hexanone-d5	0.032	0.030	0.010	-7.0	50.0
1,1,2,2-Tetrachloroethane-d2	0.146	0.140	0.010	-4.0	50.0
1,2-Dichlorobenzene-d4	0.814	0.779	0.010	-4.3	50.0

Report 1,4-Dioxane-d8 for Low/Medium VOA analysis only

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
VBLKDW

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: MB 200-46614/4

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB04.D

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.062	J
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.018	J
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

EPA SAMPLE NO.
VBLKDW

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: MB 200-46614/4

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB04.D

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-Chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
VBLKDW

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: MB 200-46614/4

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB04.D

Level: (TRACE or LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:(ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	7.56	3.3	X J
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
VHBLK01

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-5

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB11.D

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.019	J B
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
VHBLK01

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-5

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB11.D

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-Chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
VHBLK01

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: RAMONA Mod. Ref No.: SDG No.: 200-13190

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-13190-5

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DJAB11.D

Level: (TRACE or LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/17/2012

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	7.56	3.1	B X J
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

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